TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE — SOIL CONSERVATION SERVICE

Range Technical Note No. 76

January 21, 1983

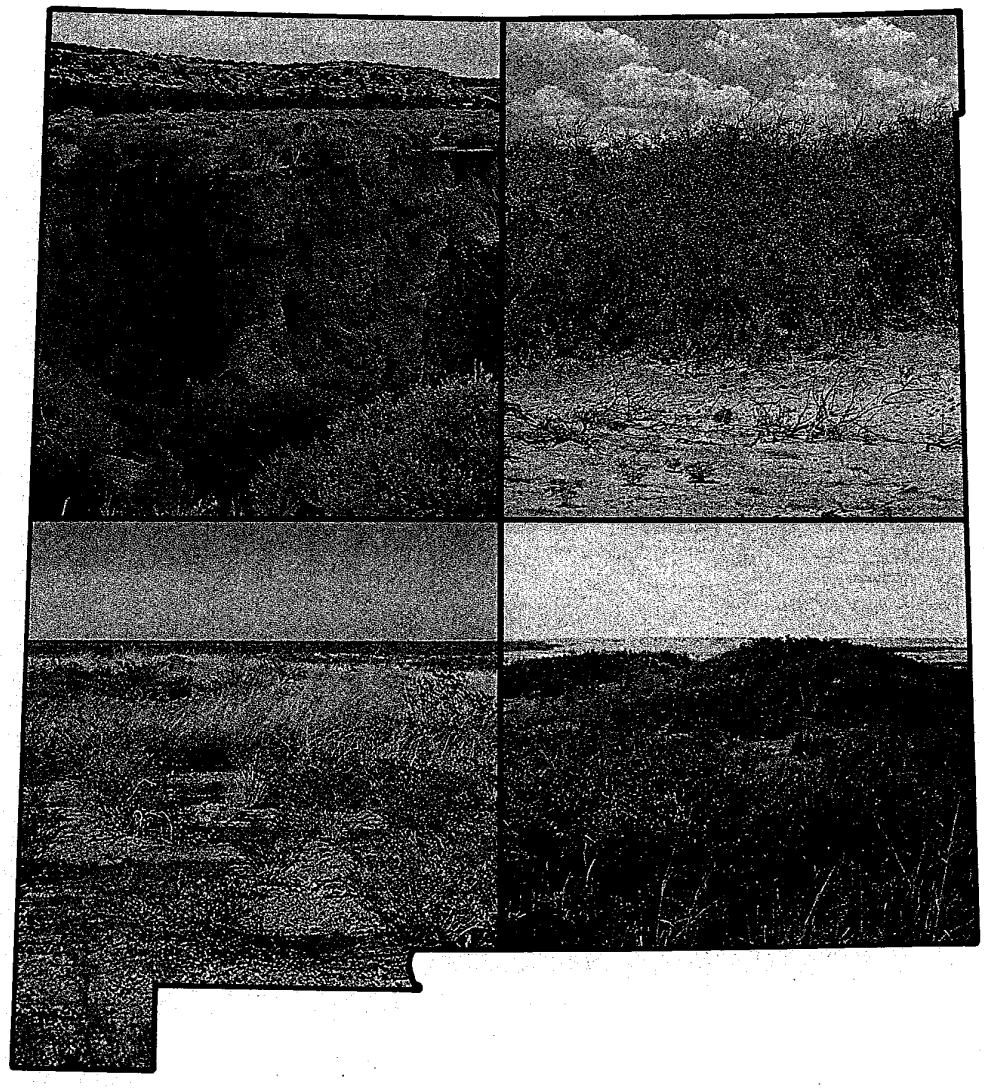
RE: New Mexico Brush Inventory

This technical note transmits basic information on brush species in New Mexico and a broad spectrum inventory of the brush areas. Each field office will need to interpret this information and prepare a detailed local map for their districts.

After routing to staffs, please cross reference to Brush Control and file in numerical order.

Attachment
Distribution:
AC - 1
DC - 1
Don Fulton, WNTC, Portland, OR
Don Pendleton, National Office, Washington, DC
Area Range Conservationists
Adjoining States: AZ, CO, TX, UT, OK

New Mexico Brush Inventory



New Mexico Department of Agriculture

New Mexico Brush Inventory

New Mexico State University
Dr. Gerald Thomas
President

New Mexico Department of Agriculture

Dr. William P. Stephens
Director/Secretary

Ronald J. White, Chief
Division of
Agricultural Programs and Resources

Authors:

Gary L. Garrison
Range Specialist
Division of Agricultural Programs
and Resources
New Mexico Department of Agriculture

Dr. Kirk C. McDaniel
Department of Animal and Range
Sciences
Cooperative Extension Service
New Mexico State University

Special Report No. 1

Funded by
The Four Corners Regional Commission
June 1982

FOREWORD

High-producing rangelands are basic to the state's economy and the livestock industry. Over the years, a combination of natural and man-caused relationships have resulted in dramatic changes in the natural vegetation on rangelands. Brush has invaded areas of valuable grassland and in so doing utilized water, the already scarce resource. The result has been a population explosion of unpalatable woody plants and the displacement of valuable forage.

In the face of limited resources and an increasing need for grass and water, New Mexico must utilize all available means to protect existing grasslands and to return desirable forage production to rangeland now containing undesirable woody plants.

Brush management is a solution for salvaging rangeland infested by woody plants. It requires careful planning with follow-up procedures and long-term maintenance. The results can provide substantial dividends in terms of increased carrying capacities and a more beneficial environment for livestock and wildlife.

This publication is an initial step in a major, coordinated effort to achieve rangeland restoration. It is intended to provide baseline information on the extent and severity of the New Mexico brush problem and to be the first of a sequence which will help to manage the invader, brush.

W. P. Stephens, Director/Secretary
New Mexico Department of Agriculture

ACKNOWLEDGMENTS

Funding for the New Mexico Brush Inventory was provided by the Four Corners Regional Commission. Without this funding and without the help and cooperation of numerous individuals involved with range management in New Mexico this inventory could not have been possible.

Appreciation is given to Mr. Charles W. (Bill) Luscher, State Director of Bureau of Land Management, Mr. M. J. Hassell, Regional Forester, U.S. Forest Service, and Mr. Alex Armijo, New Mexico Commissioner of Public Lands and to their range staffs for providing survey materials invaluable to this inventory.

Special thanks go to Mr. Ray T. Margo, State Conservationist, Soil Conservation Service, Mr. Don Sylvester, State Range Conservationist, Soil Conservation Service, and range and soil conservationists of the Soil Conservation Service for contributing maps, materials, guidance and for review of the inventory data.

Appreciation is acknowledged to the Technical Applications Center of the University of New Mexico and the Remote Sensing Division of the Office of Arid Land Studies at the University of Arizona for training in landsat imagery interpretation.

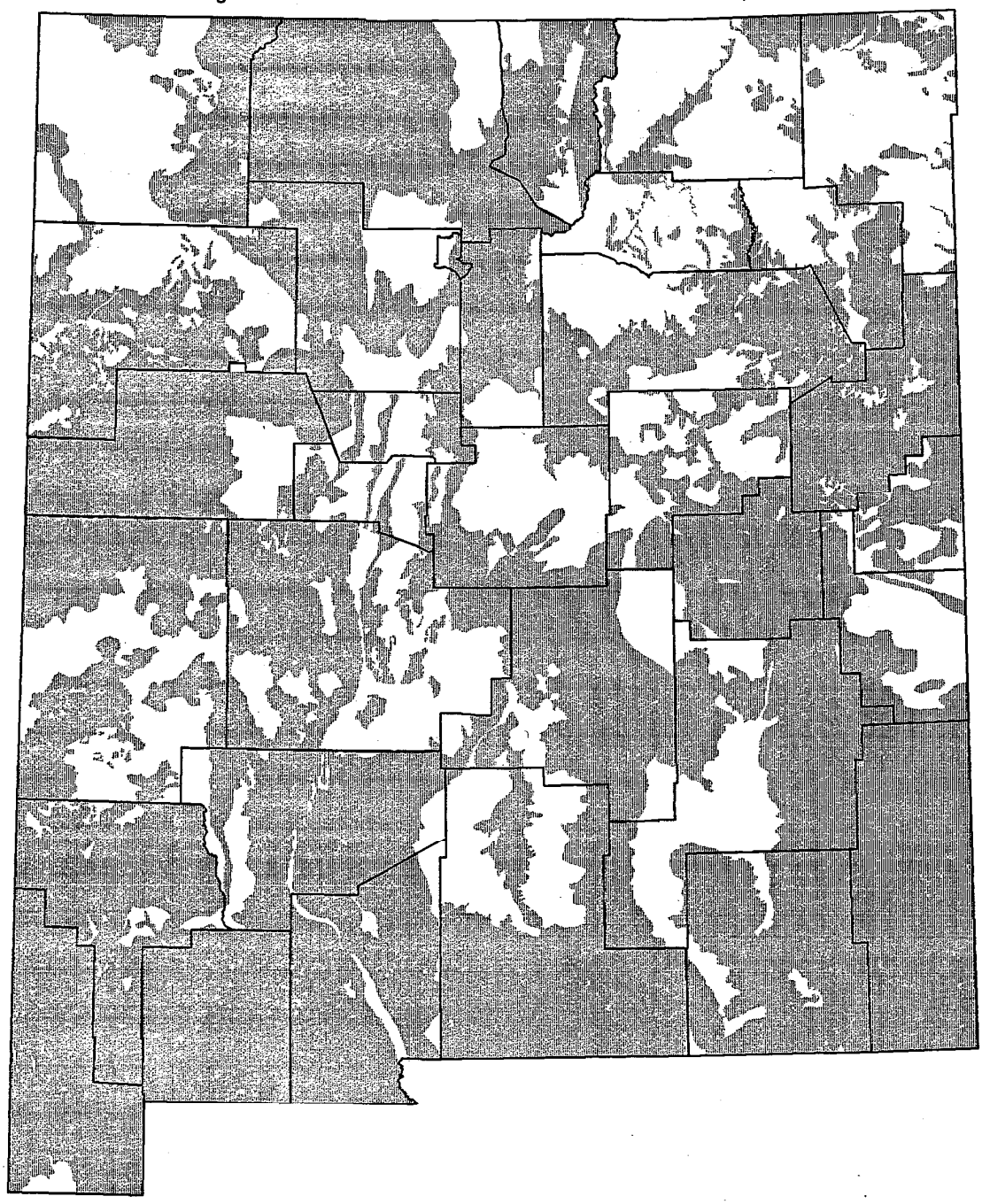
The maps and acreage computations were handled by the Applied Analysis Division of the Physical Science Laboratory at New Mexico State University.

Thanks go also to Mr. Lynn Loomis, Graduate Research Assistant who helped gather information for the inventory.

Photographs were contributed by Lana Dickson, Information Specialist, New Mexico Department of Agriculture, Dr. Kirk McDaniel and Gary Garrison.

TABLE OF CONTENTS

Figure 1. Distribution of Total Brush Occurrence in New Mexico, 1981.



The composite map of all brush inventoried shows that 65 percent of New Mexico is infested with one or more brush species.

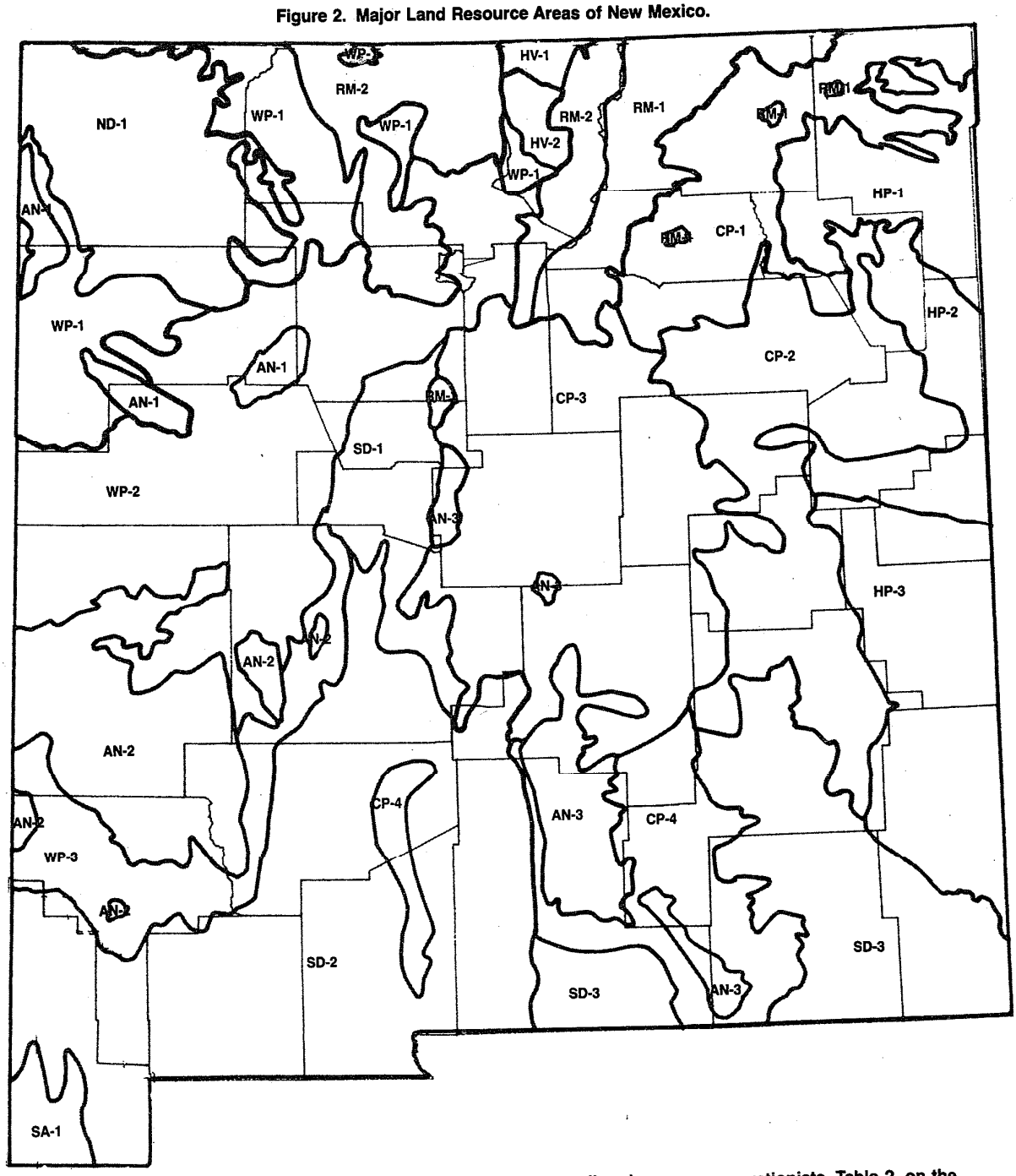
The accompanying Table 1 shows a breakdown of total brush by county.

Table 1. Acreage of Brush Occurrence in New Mexico by County, 1981.

County	Total Acres with Brush	*Total Acres in County	Percent County Land Area with Brush
Bernalillo	366,923	748,160	49
Catron	1,296,866	4,414,720	29
Chaves	2,460,563	3,900,800	63
Cibola	2,277,254	2,909,470	78
Colfax	206,756	2,413,440	9
Curry	815,451	898,560	91
De Baca	1,314,527	1,514,240	87
Dona Ana	2,289,231	2,434,560	94
Eddy	2,511,922	2,675,200	94
Grant	2,516,896	2,540,800	99
Guadalupe	699,843	1,919,360	36
Harding	657,822	1,368,320	48
Hidalgo	1,926,673	2,206,080	87
Lea	2,768,108	2,812,160	98
Lincoln	3,033,937	3,109,760	98
Los Alamos/Sandoval	2,329,121	2,448,000	95
Luna	1,885,667	1,892,480	99
McKinley	1,908,099	3,495,040	55
Mora	526,988	1,244,160	42
Otero	2,945,124	4,248,320	69
Quay	1,720,831	1,845,120	93
Rio Arriba	3,097,273	3,765,120	82
Roosevelt	758,408	1,572,480	48
San Juan	1,341,323	3,530,240	38
San Miguel	1,498,039	3,050,880	49
Santa Fe	932,582	1,221,760	76
Sierra	1,318,790	2,700,160	49
Socorro	2,557,090	4,240,640	60
Taos	701,670	1,444,480	49
Torrance	1,042,608	2,147,200	49
Union	485,069	2,442,880	20
Valencia	193,256	686,240	28
State Total	50,384,710	77,840,830	
Percent State Land Area	65		

*Source—New Mexico Statistical Abstract 1979–80, Biennial Edition

Figure 2. Major Land Resource Areas of New Mexico.



Land resource area maps are used as management tools by soil and range conservationists. Table 2, on the following page, gives a summary of brush inventoried by major land resource areas.

Table 2. Summary of Brush Inventory by Major Land Resource Areas, New Mexico, 1981.

Resource Areas	Acres of Bush	Percent Land Area
New Mexico and Arizona Mesas and Plateaus (36)		
WP—1-3	12,936,167	88
San Juan River Valley, Mesas and Plateaus (37)		
ND—1	1,237,767	34
Arizona and New Mexico Mountains (39)		
AN—1-3	3,792,097	59
Southeastern Arizona Basin and Range		
SA—1	452,591	80
Southern Desert Basins Plains and Mountains (42)		
SD—1-3	13,893,542	77
Southern Rocky Mountains (48)		
RM—1, 2	2,110,226	39
High Intermountain Valleys (51)		
HV—1, 2	432,069	79
Pecos–Canadian Plains and Valleys (70)		
CP—1-4		
CP—4* San Andres and Organ Mountains	12,565,950	61
Southern High Plains		
HP—1-3	4,855,885	60

MESQUITE

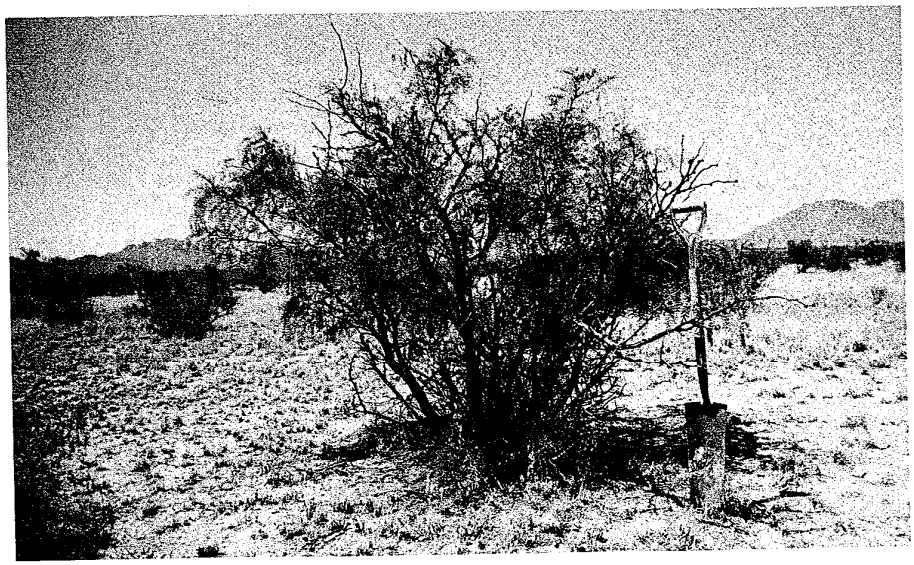
Honey Mesquite (*Prosopis glandulosa var glandulosa*)
Velvet Mesquite (*Prosopis glandulosa var velutina*)
Western Honey Mesquite (*Prosopis glandulosa var torreyana*)

Description:

Mesquite is a deciduous shrub which begins new leaf growth in early April, produces yellow catkin-like flowers in May, and develops bean pods in July and August. Branches are armed with stiff spines while twigs have a zig-zag appearance. The leaves are bipinnately compound with 6-30 alternating pairs of leaflets about one inch long.

Location and Ecology:

Mesquite is the most widespread and troublesome woody plant on New Mexico rangelands. In eastern New Mexico mesquite is a low growing shrub three to six feet tall, but can become tree-like where soil moisture is readily available. In southwestern New Mexico it frequently grows on coarse soil where sand drifts build up beneath the mesquite plants producing a rough dune-like terrain. Mesquite at times produces abundant bean pods which are eaten by wildlife and cattle. As the beans pass through the digestive tracts of animals they become scarified, which aids their ability to germinate. Mesquite occurs on heavy and sandy soils but rarely in alkaline areas.



Mesquite

Figure 3. Distribution of Mesquite in New Mexico, 1981.

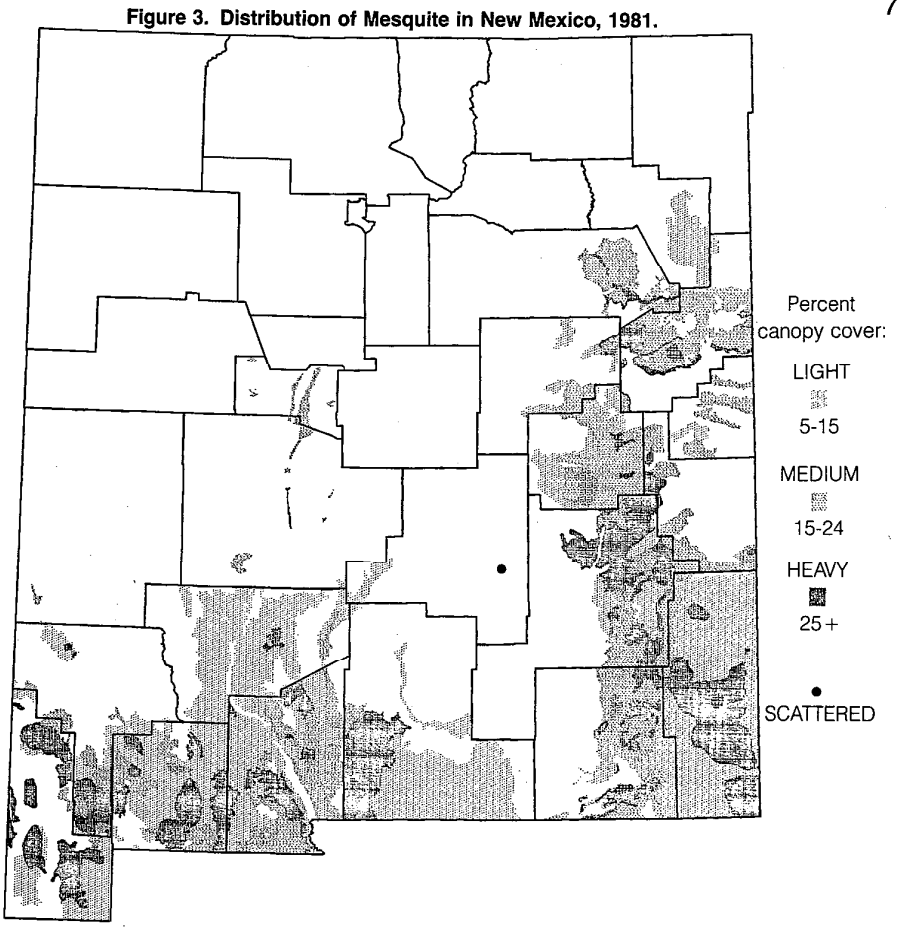


Table 3. Acreage of Mesquite, by Density, by County; New Mexico, 1981.

County	Acres				Percent County Land Area
	Light	Moderate	Dense	Total	
Catron	1,600	10,900	—	12,500	1
Chaves	348,600	531,900	796,400	1,676,900	43
Curry	52,600	212,500	—	265,100	30
De Baca	373,300	637,000	27,900	1,038,200	69
Dona Ana	1,077,800	679,800	310,600	2,068,200	85
Eddy	465,000	668,000	235,000	1,368,000	51
Grant	270,300	199,000	207,000	676,300	27
Guadalupe	151,500	96,000	40,700	288,200	15
Harding	340,800	—	—	340,800	25
Hidalgo	511,000	72,600	611,600	1,195,200	54
Lea	1,745,700	147,900	935,200	2,828,800	99
Lincoln	90,500	—	—	90,500	3
Luna	857,300	277,600	415,900	1,550,800	82
Otero	1,383,400	55,600	537,500	1,976,500	47
Quay	18,000	605,600	165,300	788,900	42
Roosevelt	40,000	337,000	80,300	457,300	29
San Miguel		370,900	48,800	419,700	14
Sierra	1,449,900	46,700	29,600	1,526,200	57
Socorro	7,900	61,800	10,200	79,900	2
Valencia	—	81,300	—	81,300	2
State Totals	9,185,200	5,092,100	4,452,000	18,729,300	
Percent State Land Area	12	6	6	24	

PINYON-JUNIPER

Common Pinyon (*Pinus edulis*)
Singleleaf Pinyon (*Pinus monophylla*)
Mexican Pinyon (*Pinus cembroides*)

One-seed Juniper (*Juniperus monosperma*)
Utah Juniper (*Juniperus osteosperma*)
Rocky Mountain Juniper (*Juniperus scopulorum*)
Alligator Juniper (*Juniperus deppeana*)
Redberry Juniper (*Juniperus pinchoti*)

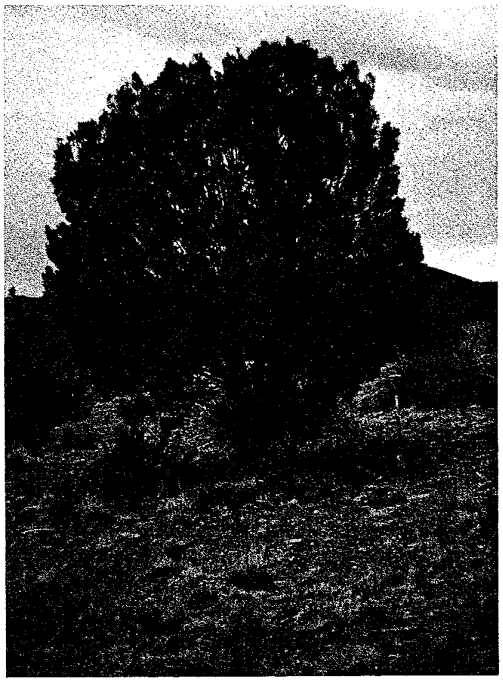
Description:

Pinyon (below left) and juniper (below right) each occur in pure stands but most often they are mixed. Pinyon, with its pine-like needles, usually grows as a poorly-formed, many-branched small tree. Occasionally pinyon occurs as a relatively straight tree growing up to 50 feet tall. Juniper, which includes a group of five different species in New Mexico, occurs as a brushy shrub-like plant to a well rounded tree with a trunk reaching two feet in diameter.

Location and Ecology:

Juniper usually grows at lower elevations than pinyon before grading up into mixed stands, and eventually pure stands of pinyon at higher elevations. Both species are gaining popularity as a source of fuelwood and other wood products. The large red and blue berries on junipers are used heavily by birds and other forest wildlife. Pinyon nuts have long been a favorite of both wildlife and recreationists and are sometimes sold commercially.

Pinyon



Juniper

Figure 4. Distribution of Pinyon-Juniper in New Mexico, 1981.

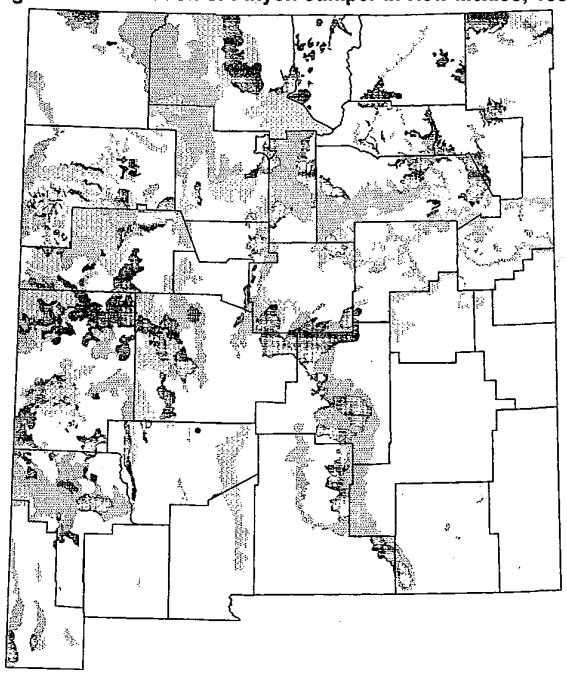


Table 4. Acreage of Pinyon-Juniper, by Density, by County; New Mexico, 1981.

County	Acres				Percent County Land Area
	Light	Moderate	Dense	Total	
Bernalillo	20,200	91,700	69,400	181,300	24
Catron	856,000	460,600	1,167,400	2,484,000	56
Chaves	—	335,100	—	335,100	9
Cibola	755,200	542,900	484,300	1,782,400	63
Colfax	39,400	—	181,100	220,500	9
Curry	—	16,400	—	16,400	2
De Baca	199,000	—	—	199,000	13
Dona Ana	213,600	—	—	213,600	9
Eddy	6,800	3,100	87,600	97,500	4
Grant	79,200	879,800	338,300	1,297,300	47
Guadalupe	241,000	200,400	22,700	464,100	24
Harding	8,700	41,400	161,600	211,700	16
Hidalgo	190,300	142,700	96,800	429,800	19
Lincoln	—	639,600	623,800	1,263,400	41
Los Alamos/Sandoval	630,300	533,000	130,500	1,293,800	53
Luna	3,800	—	—	3,800	1
McKinley	714,000	372,800	286,100	1,372,900	43
Mora	7,300	46,400	117,000	170,700	14
Otero	62,400	338,500	348,900	749,800	18
Quay	—	281,200	—	281,200	15
Rio Arriba	954,900	916,100	514,800	2,385,800	64
Roosevelt	20,200	—	—	20,200	1
San Juan	162,700	483,700	832,200	1,478,600	21
San Miguel	95,600	751,500	450,600	1,297,700	43
Santa Fe	26,600	546,000	293,000	865,600	71
Sierra	339,400	19,400	133,500	492,300	18
Socorro	525,200	492,200	669,400	1,686,800	40
Taos	—	—	208,600	208,600	14
Torrance	205,300	308,700	340,100	854,100	40
Union	171,300	57,400	259,600	488,300	20
Valencia	83,400	26,500	18,400	128,304	16
State Totals	6,611,804	8,527,100	7,835,700	22,974,604	
Percent State Land Area	8	11	10	29	

CREOSOTE-TARBUSH

Creosote Bush (*Larrea tridentata*)
Tarbush (*Flourensia cernua*)

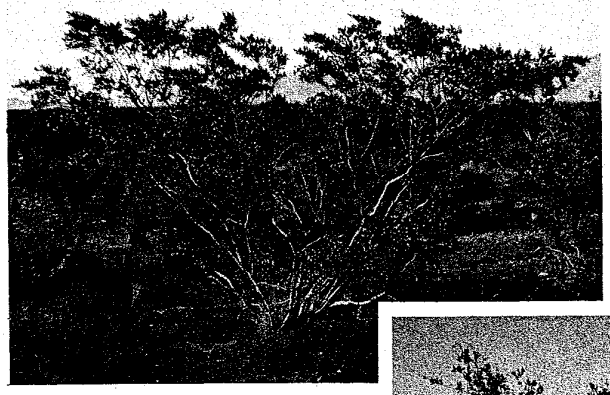
Description:

Creosote bush (below left) is an olive green aromatic shrub, occasionally growing to ten feet. Small, short stalked, yellow solitary flowers bloom in mid-summer. By early fall the fruit forms under a dense cover of fine white hair. The leathery resinous leaves give off an odor distinctive of creosote when crushed.

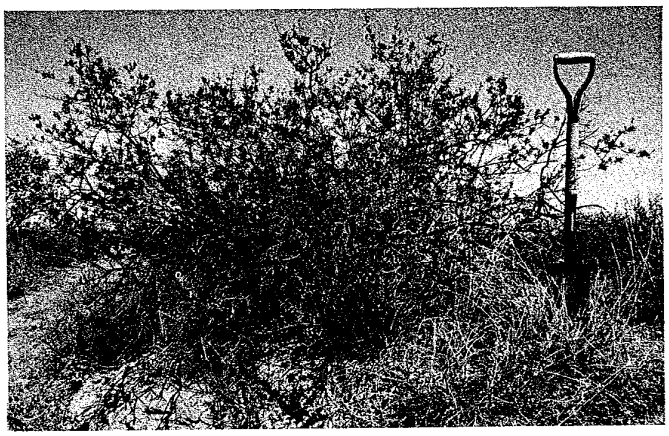
Tarbush (below right) is a many branched shrub growing three to six feet tall. Its small, thick alternate leaves exude a resinous substance. The yellowish, bell-shaped flowers of tarbush have a nodding or drooping appearance.

Location and Ecology:

Creosote bush and tarbush occur in the driest and hottest portions of southern and central New Mexico. They often form pure stands and occur on deep gravelly mesas, valleys, and outwash fans below foothills. Creosote bush may occupy sandy or heavy soils underlain by a calcareous hard pan known as caliche. Creosote bush is adapted to a variety of soils with the exception of highly saline areas. Tarbush is more commonly found on limestone soils. On bottom land tarbush can be found near the fringe of tobosa grass swales. Creosote bush and tarbush growing together on bottom lands are sometimes referred to as tarbush-creosote bush flats.



Creosote



Tarbush

Figure 5. Distribution of Creosote-Tarbush in New Mexico, 1981.

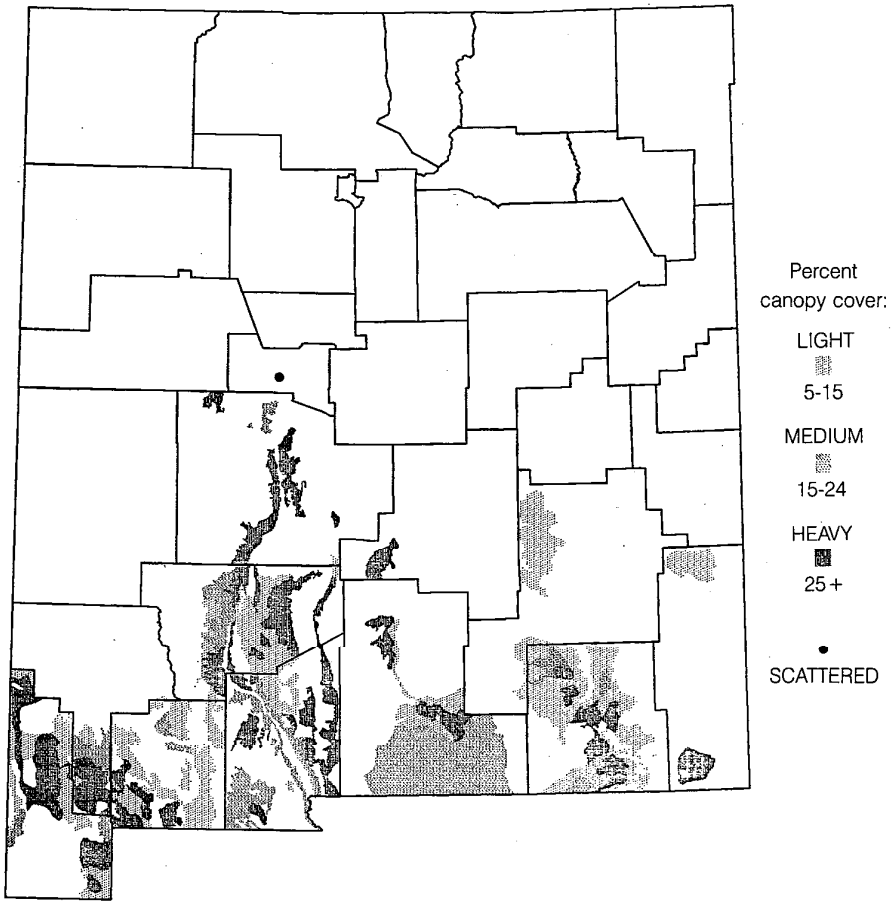


Table 5. Acreage of Creosote-Tarbush, by Density, by County; New Mexico, 1981.

County	Acres				Percent County Land Area
	Light	Moderate	Dense	Total	
Chaves	452,600	—	—	452,600	12
Dona Ana	286,600	395,200	429,800	1,111,600	46
Eddy	1,087,500	140,600	306,200	1,534,300	58
Hidalgo	486,100	75,700	520,000	1,081,800	49
Lea	165,100	—	131,800	296,900	11
Lincoln	—	—	94,700	94,700	3
Luna	683,300	49,400	186,700	919,400	49
Otero	237,800	1,188,600	212,600	1,639,000	39
Sierra	515,100	173,800	497,000	1,185,900	44
Socorro	8,000	39,500	359,700	407,200	10
Grant	52,300	121,900	205,800	380,000	15
State Totals	3,974,400	2,184,700	2,944,300	9,103,400	
Percent State Land Area	5	3	4	12	

CHOLLA

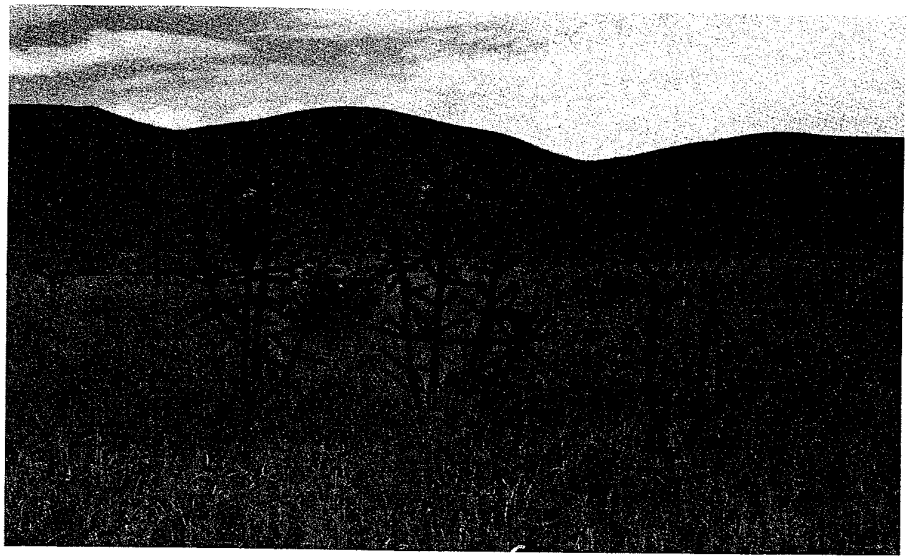
Common Cholla (*Opuntia imbricata*)

Description:

Cholla is a large tree-like cactus growing three to eight feet tall with cylindrical joints one inch in diameter and three to five inches long. Spines are numerous and about one inch long. Cholla flowers are purple and mature into yellow fruit. The fruit drops to the ground when ripe, producing new plants. Cholla also reproduces from terminal joints that fall to the ground and sprout when moisture conditions are favorable.

Location and Ecology:

Cholla, often called "tree cactus," "walking stick cholla," or "cane cactus," is widely distributed throughout most of New Mexico. Cholla reaches its greatest densities in the plains, prairie, and mountain regions of central and eastern New Mexico. Cholla commonly occurs on clay and clay loam soils underlain by limestone. Cholla becomes a problem on rangeland when grass cover is depleted. Thick stands can hinder livestock operations and sometimes results in livestock becoming "cholla eaters."



Cholla

Figure 6. Distribution of Cholla in New Mexico, 1981.

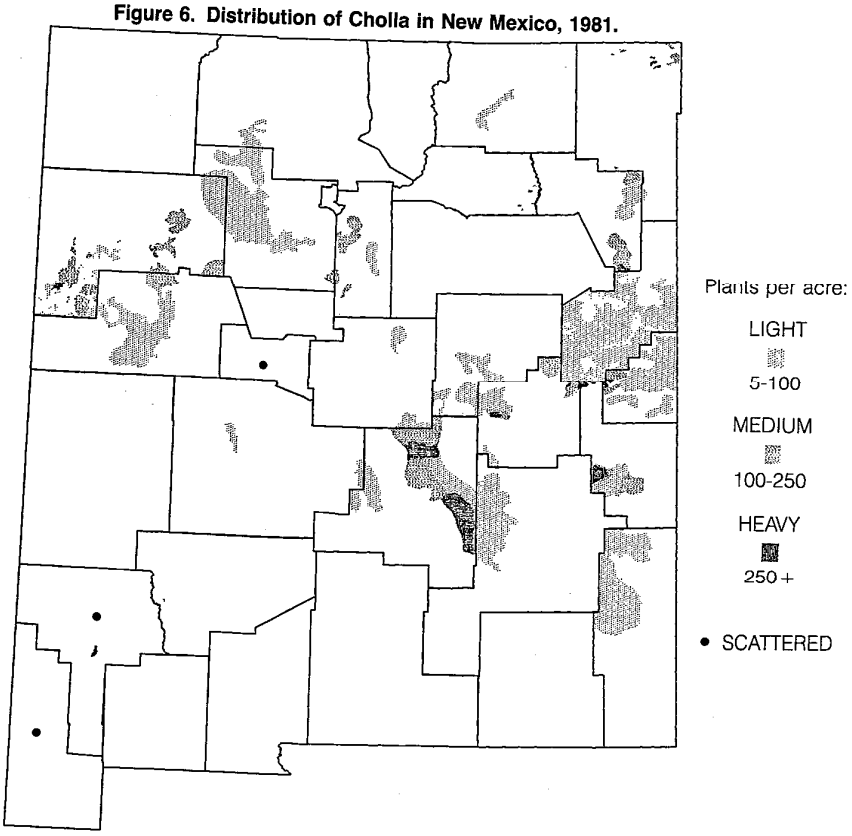


Table 6. Acreage of Cholla, by Density, by County; New Mexico, 1981.

County	Acres				Percent County Land Area
	Light	Moderate	Dense	Total	
Bernalillo	1,000	—	—	1,000	<1
Chaves	412,600	—	—	412,600	11
Cibola	470,500	49,000	—	519,500	18
Colfax	63,600	—	—	63,600	3
Curry	443,600	39,600	7,400	490,600	55
De Baca	181,500	48,900	12,600	243,000	16
Grant	110,000	—	5,600	115,600	1
Guadalupe	213,400	—	—	213,400	11
Harding	105,300	104,600	7,800	217,700	6
Lea	547,900	—	—	547,900	19
Lincoln	296,700	291,500	231,100	819,300	26
Los Alamos/Sandoval	683,400	14,300	—	697,700	29
McKinley	96,200	281,100	18,300	395,600	11
Mora	—	1,400	1,900	3,300	<1
Quay	927,200	—	—	927,200	50
Rio Arriba	65,800	—	—	65,800	2
Roosevelt	98,700	79,800	42,400	220,900	14
San Miguel	141,000	—	—	141,000	5
Santa Fe	52,100	93,300	—	145,400	12
Socorro	59,800	—	—	59,800	1
Torrance	94,700	—	—	94,700	4
Union	7,100	19,600	6,000	32,700	1
Valencia	2,000	—	—	2,000	—
State Totals	5,074,100	1,023,100	333,100	6,430,300	
Percent State Land Area	6.5	1	0.5	8	

YUCCA

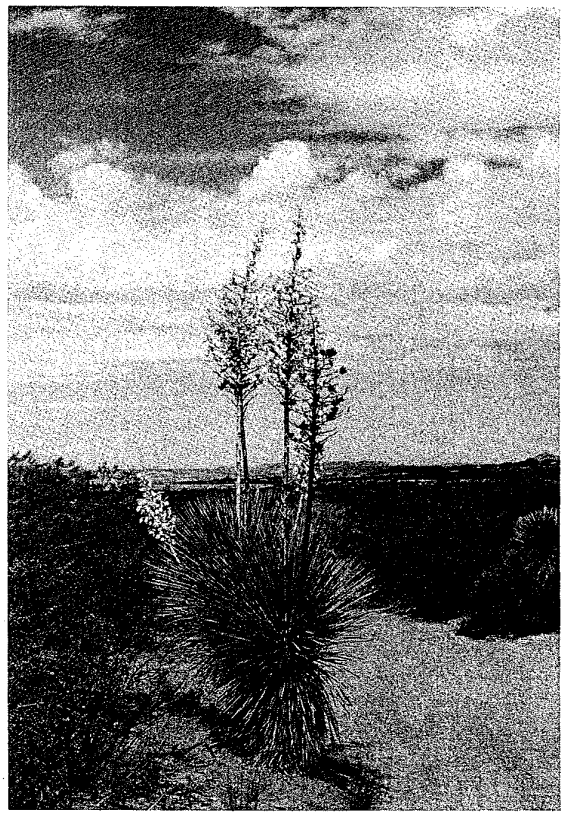
Soaptree Yucca (*Yucca elata*)
Small Soapweed (*Yucca glauca*)

Description:

Soaptree yucca grows upright as a tree to 6 feet or less and occasionally to 20 feet tall. Small soapweed is low growing and resembles the soaptree yucca with its 10 to 30 inch long, straight, stiff pointed leaves radiating outward from the top of the plant. Yucca flowers protrude from stalks rising from the center of the plant and the white petals form together as a large cluster.

Location and Ecology:

Yucca is common over many range sites, but usually occurs in higher densities on sandy soils. The soaptree yucca is most common in southern New Mexico on dry soils. The small soapweed is found in the high plains and central plateaus. The yucca's flowers are highly palatable and are grazed heavily by livestock in May and June. The plant also provides nesting and escape cover for small rodents and birds and feed for deer, antelope, and javelina.



Yucca

Figure 7. Distribution of Yucca in New Mexico, 1981.

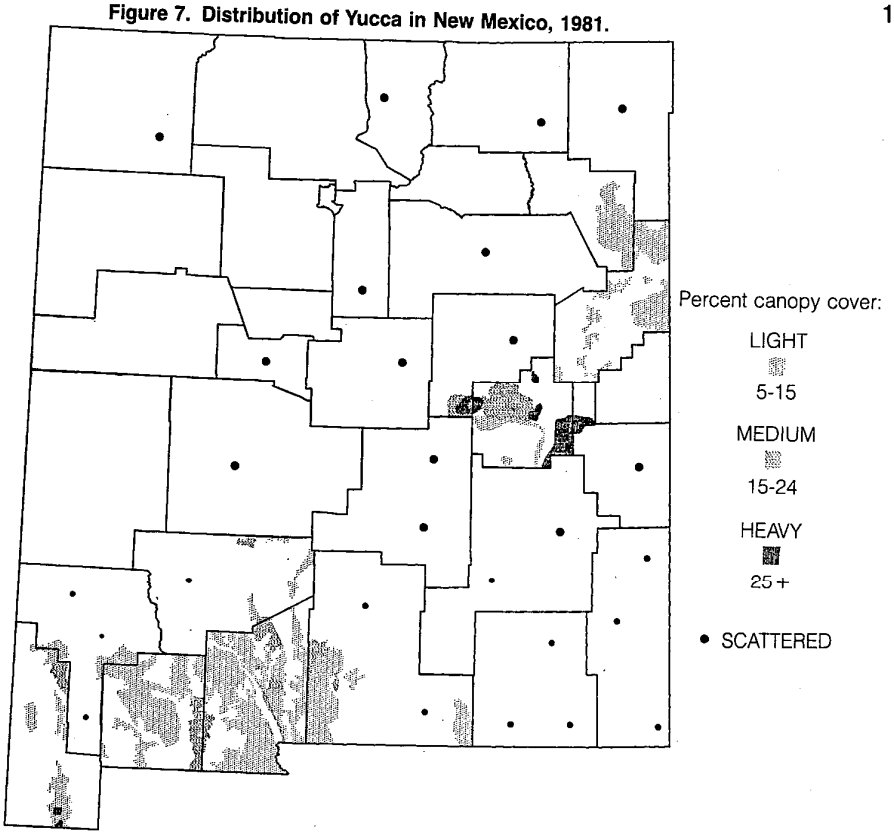


Table 7. Acreage of Yucca, by Density, by County; New Mexico, 1981.

County	Acres				Percent County Land Area
	Light	Moderate	Dense	Total	
Bernalillo	12,000	—	—	12,000	1
Chaves	24,000	—	—	24,000	1
Colfax	6,000	—	—	6,000	<1
Curry	3,200	—	—	3,200	<1
De Baca	121,900	769,300	190,900	1,082,100	72
Dona Ana	1,428,700	171,500	—	1,600,200	66
Eddy	43,000	—	—	43,000	2
Grant	139,500	—	—	139,500	5
Guadalupe	7,100	—	—	7,100	2
Harding	340,800	48,100	34,400	423,300	31
Hidalgo	292,800	56,100	16,400	365,300	17
Lea	11,000	—	—	11,000	<1
Lincoln	175,000	—	—	175,000	9
Luna	720,200	123,600	—	843,800	45
Otero	587,500	69,000	—	656,500	15
Quay	490,200	—	—	490,200	27
Roosevelt	—	—	46,200	46,200	3
San Juan	187,000	—	—	187,000	5
San Miguel	95,000	—	—	95,000	3
Santa Fe	10,000	—	—	10,000	1
Sierra	104,900	26,900	—	131,800	5
Socorro	32,000	—	—	32,000	1
Torrance	56,000	—	—	56,000	3
Union	60,000	—	—	60,000	3
State Totals	4,947,800	1,264,500	287,900	6,500,200	
Percent State Land Area	6	1.5	0.5	8	

BIG SAGEBRUSH

Big Sagebrush (*Artemisia tridentata*)

Description:

Big sagebrush is an evergreen shrub growing 1½ to 6 feet tall. The grey-green wedge-shaped leaves are 3-lobed and give off a distinctively pungent sage odor when crushed. The flowers and later the seeds occur around the crown of the plant as showy panicles. The bark on the woody stems is thin and easily shreds into long grayish-brown strips.

Location and Ecology:

Big sagebrush is one of the more widely known shrubs in the western states and covers vast acreages in northwestern New Mexico. Growing alone in dense stands or mixed under pinyon-juniper woodlands, big sagebrush can be found on dry loamy to rocky soils occurring on open plains, hills and lower mountain slopes.

Although sagebrush is not very palatable, it does furnish feed for wildlife and some grazing for livestock, especially when snow covers the more palatable plants.

Big Sagebrush

Figure 8. Distribution of Big Sagebrush in New Mexico, 1981.

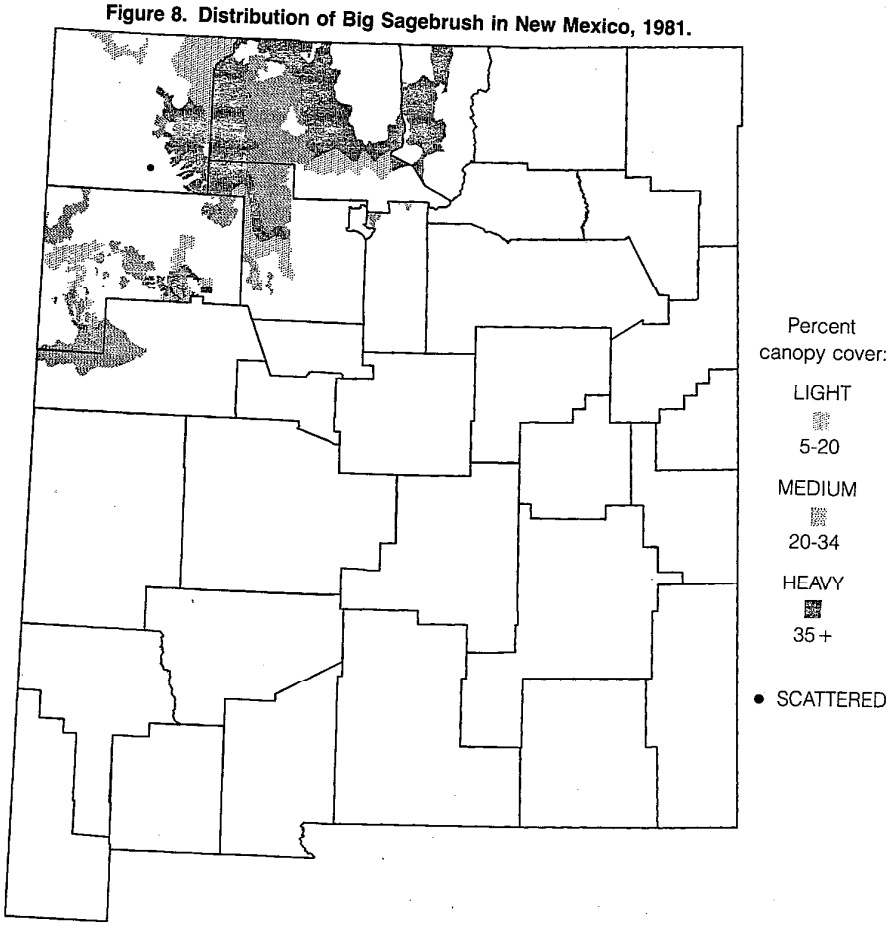


Table 8. Acreage of Big Sagebrush, by Density, by County; New Mexico, 1981.

County	Acres				Percent County Land Area
	Light	Moderate	Dense	Total	
Cibola	—	300,600	—	300,600	11
Los Alamos/Sandoval	227,700	372,000	147,400	747,100	31
McKinley	369,200	393,600	140,400	903,200	26
Rio Arriba	200,100	656,800	1,371,500	2,228,400	60
San Juan	483,700	28,000	378,700	890,400	25
Santa Fe	—	18,000	—	18,000	2
Taos	44,000	42,000	284,800	370,800	26
State Totals	1,324,700	1,811,000	2,322,800	5,458,500	
Percent State Land Area	1.5	2.5	3	7	

SAND SAGEBRUSH

Sand Sagebrush (*Artemisia filifolia*)

Description:

Sand sagebrush is a grayish, aromatic shrub with seeds borne in long terminal spikes. This plant resembles big sagebrush, but is smaller (usually not over four feet) and is more delicate with very slender hair like leaves.

Location and Ecology:

Sand sagebrush is usually found at relatively low elevations and is characteristic of deep sandy soils. It is often associated with shinnery oak. Sand sage has some browse value, but like other brush species, is of little value in meeting nutritional requirements of livestock and wildlife when found in dense stands.

Sand Sagebrush

Figure 9. Distribution of Sand Sagebrush in New Mexico, 1981.

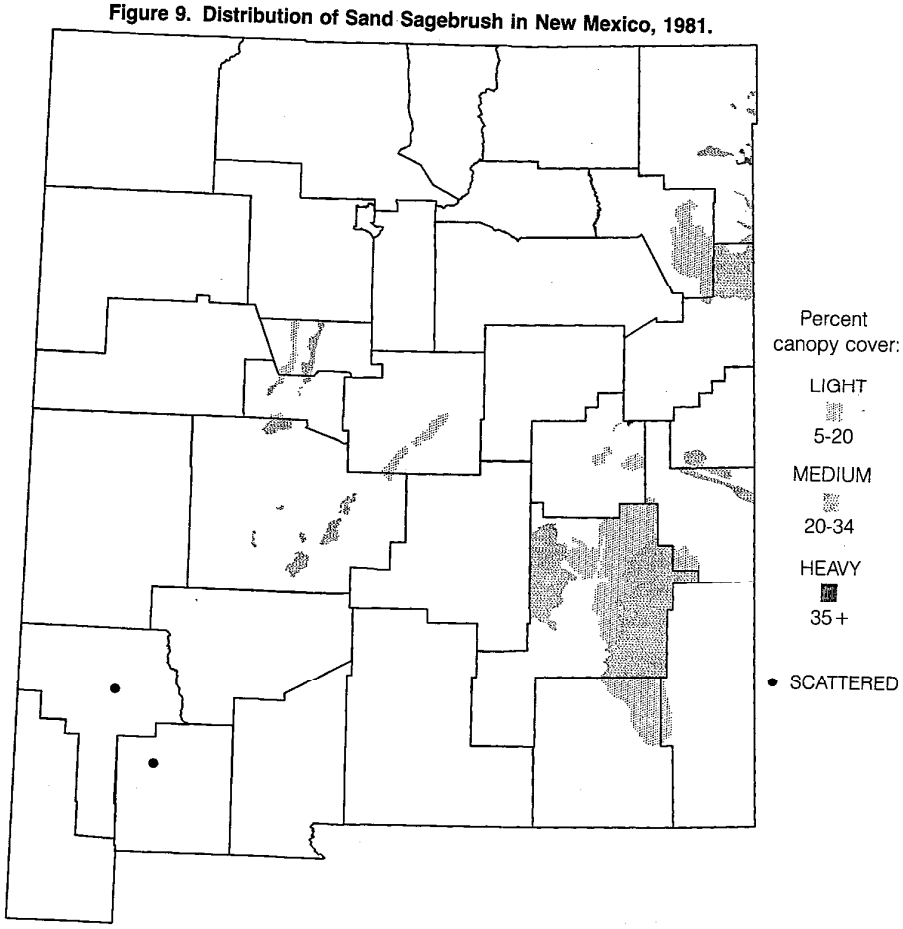


Table 9. Acreage of Sand Sagebrush, by Density, by County; New Mexico, 1981.

County	Acres				Percent County Land Area
	Light	Moderate	Dense	Total	
Bernalillo	56,800	51,300	—	108,100	14
Chaves	788,600	1,304,600	—	2,093,200	54
Colfax	4,000	—	—	4,000	4
Curry	—	38,600	—	38,600	4
De Baca	67,500	—	2,700	70,200	5
Eddy	63,000	—	—	63,000	3
Harding	340,800	—	—	340,800	25
Lea	11,000	—	—	11,000	1
Luna	6,000	—	—	6,000	1
Quay	—	246,400	—	246,400	13
Roosevelt	—	92,500	—	92,500	5
Socorro	7,300	139,000	—	146,300	3
Torrance	91,500	—	—	91,500	4
Union	—	67,100	12,200	79,300	3
Valencia/Cibola	16,000	—	—	16,000	<1
State Totals	1,452,500	1,939,500	14,900	3,406,900	
Percent State Land Area	1	2.5	0.5	4	

SHINNERY OAK

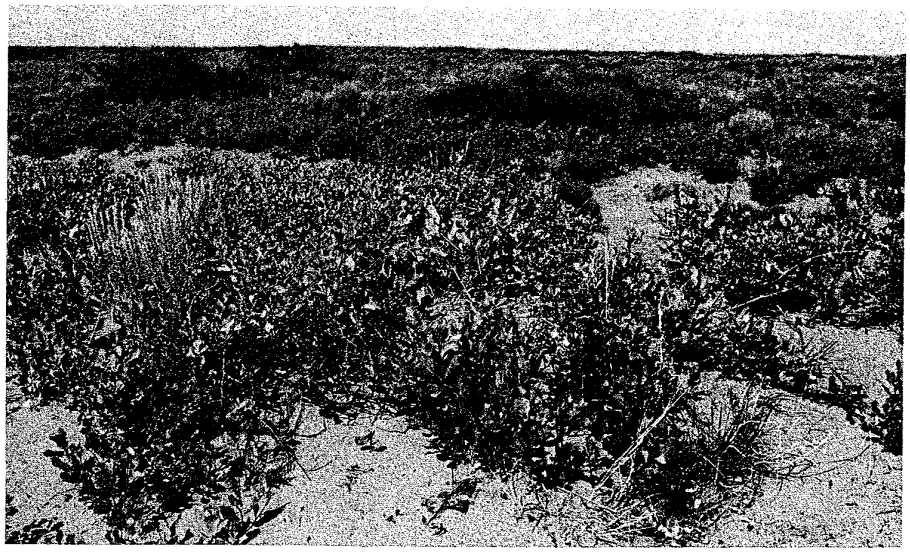
Sand Shinnery Oak (*Quercus harvardii*)

Description:

Shinnery oak usually grows to less than three feet, and occasionally to 15 feet. The leathery grayish-green leaves are lobed and deciduous. Flowers are borne in separate male and female catkins and the fruit is a large chestnut brown colored acorn.

Location and Ecology:

Shinnery oak occurs as dense thickets on sandy soils throughout the eastern one-half of New Mexico. Growing on sandy hills and dunes, shinnery oak forms circular mottes by means of a massive system of rhizomonous roots. Shinnery oak is considered to be a valuable browse source when it occurs in light to moderate stands, but does cause livestock poisoning during the first 1 to 2 months of new annual leaf growth. This plant provides feed and cover for wildlife when in light to moderate stands. Dense stands of shinnery oak do not provide a balanced diet of forage for wildlife and livestock. Shinnery oak grows in association with mesquite, sand sagebrush, yucca, dropseed and bluestem grasses.



Shinnery Oak

Figure 10. Distribution of Shinnery Oak in New Mexico, 1981.

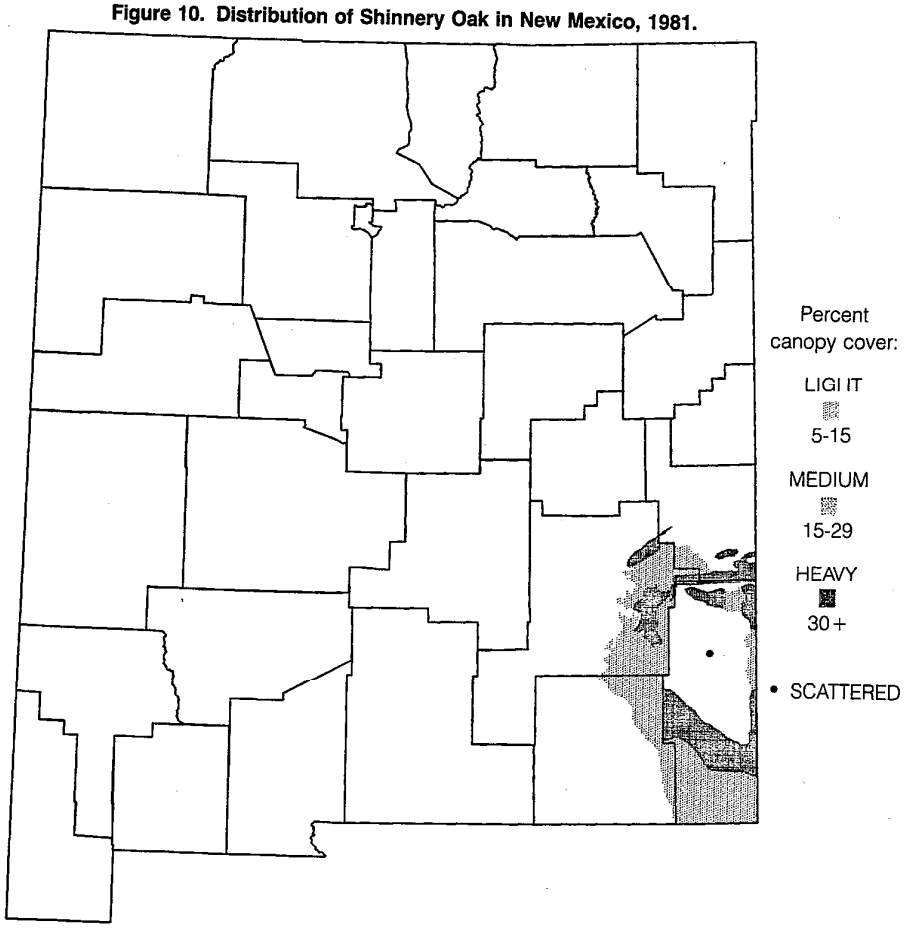


Table 10. Acreage of Shinnery Oak, by Density, by County; New Mexico, 1981.

County	Acres				Percent County Land Area
	Light	Moderate	Dense	Total	
Chaves	658,600	—	233,400	892,000	23
Lea	801,700	—	709,800	1,511,500	54
Roosevelt	86,100	—	64,600	150,700	4
Eddy	85,000	—	—	85,000	3
State Totals	1,631,400	—	1,007,800	2,639,200	
Percent State Land Area	2		1	3	

SHRUB OAKS

Shrub Live Oak (*Quercus turbinella*)
Wavyleaf Oak (*Quercus underlata*)
Gambel Oak (*Quercus gambelii*)

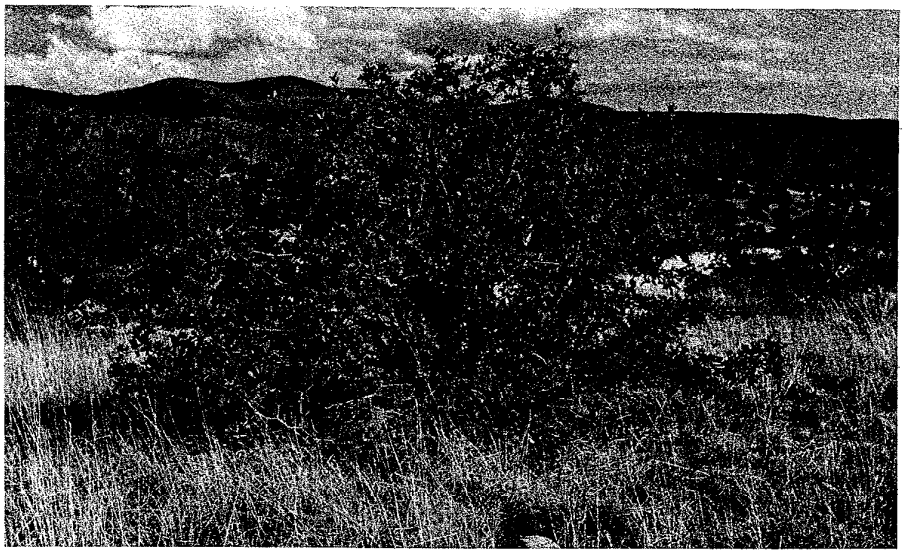
Description:

Growing as a shrub or small tree, several different species of oaks are found in New Mexico. Mountain or shrub oaks usually are deciduous and have distinctive dark green leaves that are deeply lobed with spine-tipped teeth. Acorns borne in late summer vary in production depending on the year and are usually less than one inch in length.

Location and Ecology:

Shrub oaks are generally found as individual trees along drainage or side slopes of hills at low elevations. Dense thickets of wavyleaf and gambel oak are found in pinyon-juniper and ponderosa pine areas at elevations of 4,500 to 9,000 feet. In dense stands oak crowds out other vegetation and forms a near monoculture of little grazing value. The oak brush species usually provide valuable browse to wildlife and livestock where it occurs in a balanced composition with other forage plants.

The acorns sometimes constitute a large portion of the diet for deer, elk and turkey as well as other small mammals.



Shrub Oak

Figure 11. Distribution of Shrub Oak in New Mexico, 1981.

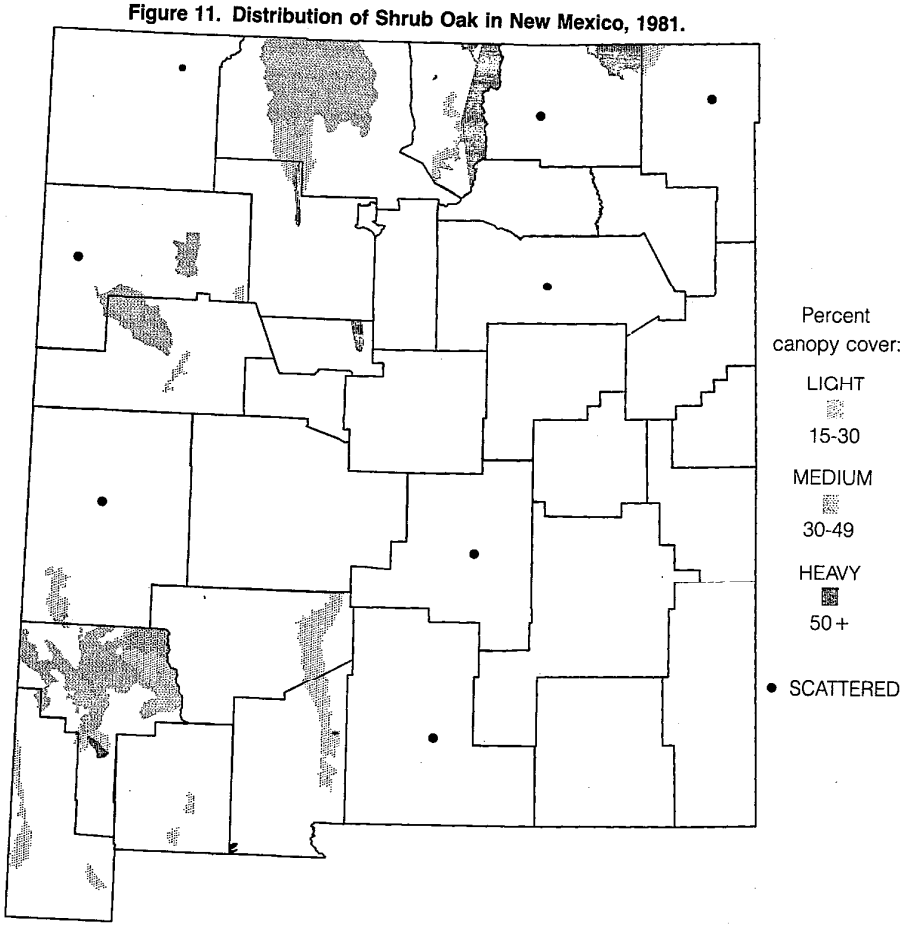


Table 11. Acreage of Shrub Oak, by Density, by County; New Mexico, 1981.

County	Acres				Percent County Land Area
	Light	Moderate	Dense	Total	
Bernalillo	—	—	37,400	37,400	5
Catron	115,200	9,300	—	124,500	3
Cibola	37,600	280,000	—	317,600	11
Colfax	63,600	—	116,800	180,400	7
Grant	51,400	846,000	—	897,400	35
Hidalgo	183,600	14,200	—	197,800	9
Lincoln	55,000	—	—	55,000	1
Los Alamos/Sandoval	43,300	—	33,700	77,000	3
Luna	35,800	—	35,800	71,600	2
McKinley	21,800	102,800	—	124,600	4
Mora	31,000	—	—	31,000	1
Otero	33,000	—	—	33,000	1
Rio Arriba	224,600	1,193,600	—	1,418,200	38
San Miguel	—	388,200	—	388,200	13
Sierra	261,000	—	—	261,000	10
Taos	108,100	—	591,600	699,700	48
Union	56,900	—	—	56,900	2
State Totals	1,321,900	2,834,100	815,300	4,971,300	
Percent State Land Area	1.5	3.5	1	6	

RABBIT BRUSH

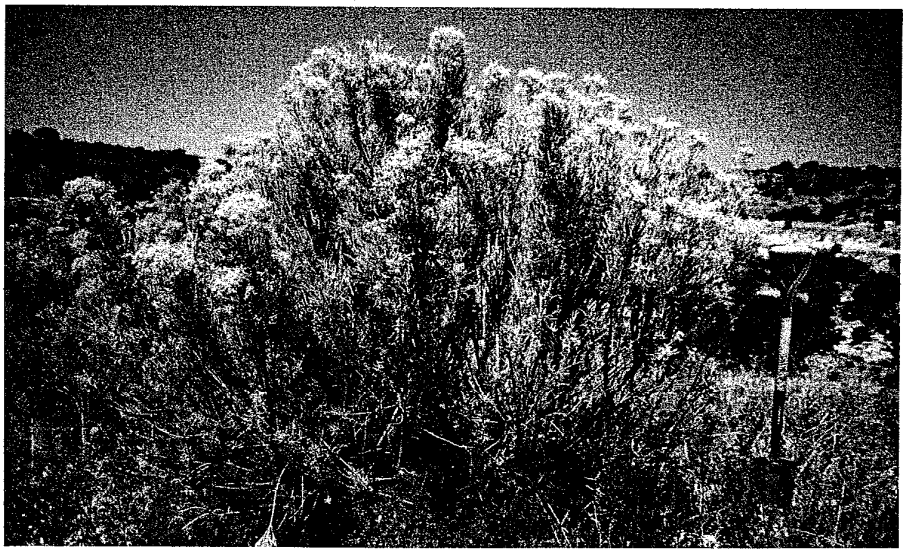
Rubber Rabbit Brush (*Chrysothamnus nauseosus*)
Douglas Rabbit Brush (*Chrysothamnus viscidiflorus*)

Description:

Rabbit brush is a deep rooted shrub growing 20 to 72 inches tall. Small clusters of yellow flowers are profuse over the rounded crown of the plant in late summer and fall. Leaves are narrow, one to three inches long and grey-green in color. Stems are noticeably white and felty with a grayish-cast in the winter. Botanists have listed as many as 70 species of rabbit brush in the west with about 12 species, of which douglas and rubber rabbit brush are most common, occurring in New Mexico.

Location and Ecology:

Rabbit brush tends to grow well on coarse sandy soils in drainage and disturbed sites throughout western and north-central New Mexico. It is common on waste places, overgrazed rangeland, highway rights-of-way and roadsides. Rabbit brush is of low to no forage value for wildlife and domestic livestock.



Rabbit Brush

Figure 12. Distribution of Rabbit Brush in New Mexico, 1981.

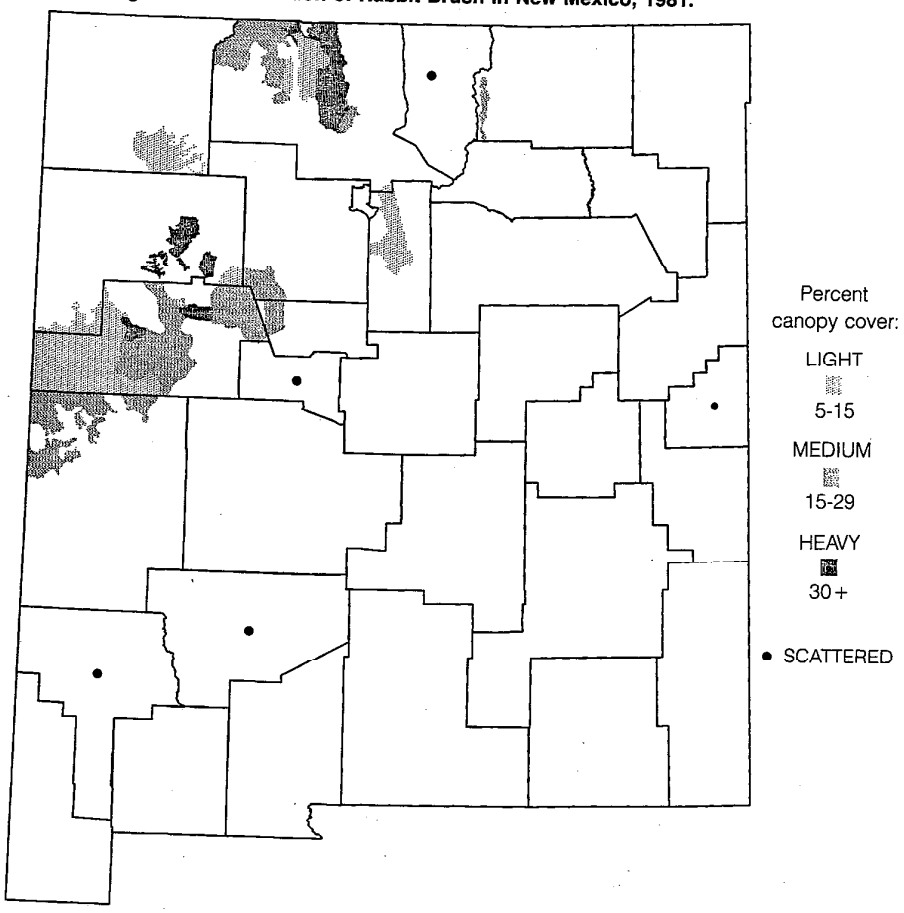


Table 12. Acreage of Rabbit Brush, by Density, by County: New Mexico, 1981.

County	Acres				Percent County Land Area
	Light	Moderate	Dense	Total	
Bernalillo	—	79,500	—	79,500	11
Catron	—	548,100	—	548,100	12
Cibola	904,300	888,200	95,400	1,887,900	67
Colfax	—	43,200	—	43,200	2
Curry	4,000	—	—	4,000	1
Grant	33,000	—	—	33,000	1
Los Alamos/Sandoval	—	137,700	—	137,700	6
McKinley	52,800	—	192,000	244,800	7
Rio Arriba	230,700	461,000	370,700	1,062,400	28
San Juan	243,300	—	—	243,300	7
Santa Fe	247,900	—	—	247,900	20
Socorro	26,000	—	—	26,000	1
Taos	1,800	—	—	1,800	1
Valencia	—	7,700	—	7,700	1
State Totals	1,743,800	2,164,700	658,100	4,566,600	
Percent State Land Area	2	2	1	5	

CATCLAW

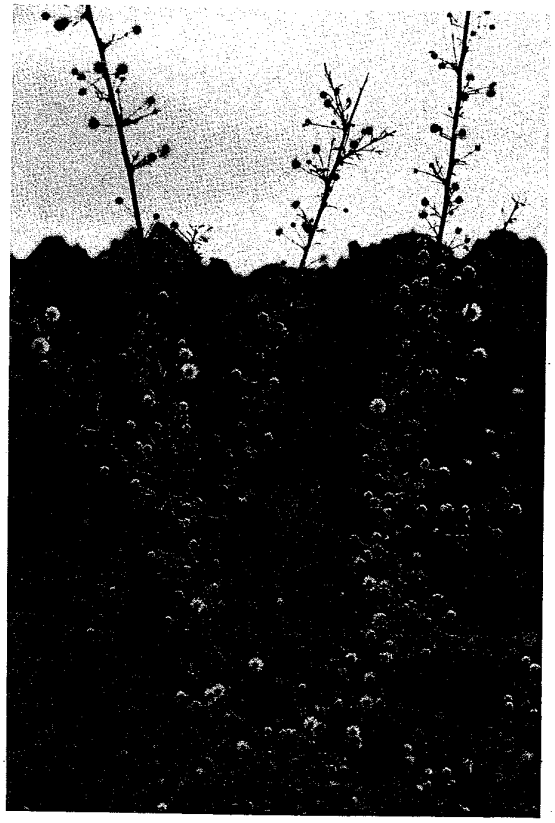
Catclaw Acacia (*Acacia greggii*)
Catclaw Mimosa (*Mimosa biuncifera*)

Description:

These thorny shrubs with branches curved like the claws of a cat are members of the legume family. Catclaw acacia and catclaw mimosa have similar spines and might be confused with one another. The mimosa flowers are cylindrical and yellow while the acacia's flowers are cream to white in color. The leaves of catclaw mimosa are composed of few leaflets rather than many as in the catclaw acacia. The shrubs of all species usually are multistemmed and four to eight feet in height. They may grow to tree size with two inch diameter trunks in favorable areas.

Location and Ecology:

The acacias and mimosas are common in the desert zone extending from Texas and Mexico, across New Mexico and Arizona, and west into southern California. In New Mexico the acacias are adapted to dry, gravelly loam and sandy loam soils found in dry valleys and ravines, washes and canyon slopes. The mimosa occurs on clay loam soils often in solid stands or in association with honey mesquite. Both species provide cover and food in drier areas for upland game birds, but sometimes form heavy, solid stands which seriously limit range forage production. In heavy stands catclaw restricts the efficiency of working and handling livestock.



Catclaw

Figure 13. Distribution of Catclaw in New Mexico, 1981.

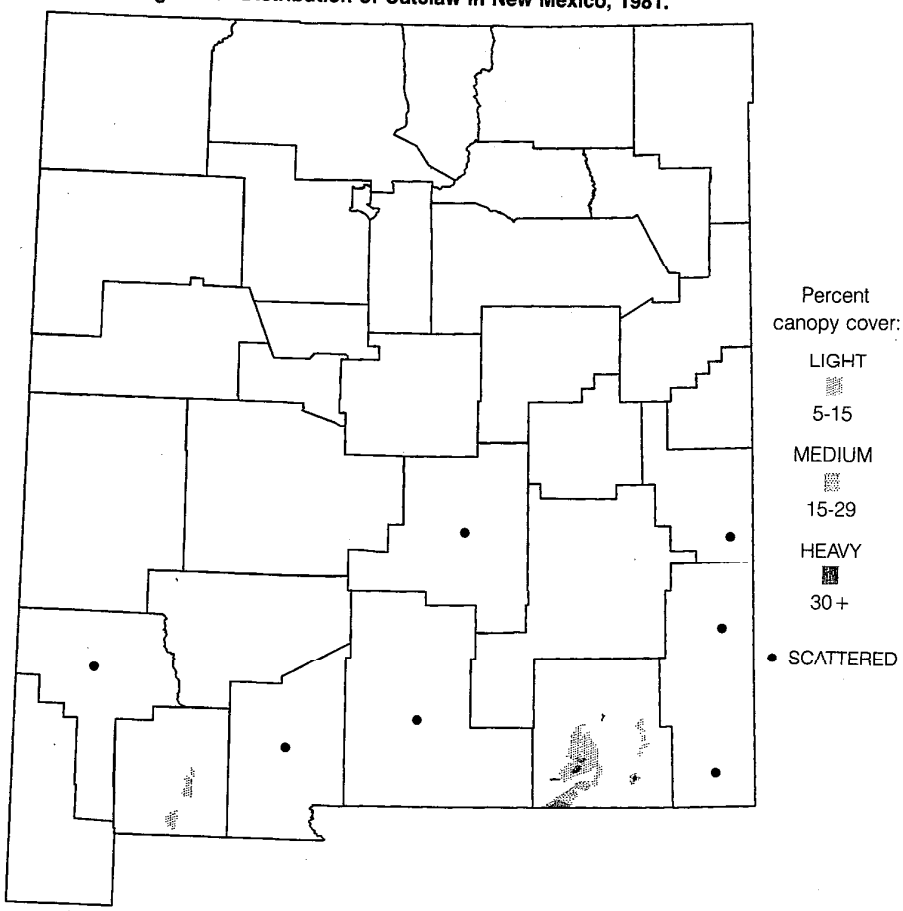


Table 13. Acreage of Catclaw, by Density, by County; New Mexico, 1981.

County	Acres			Total	Percent County Land Area
	Light	Moderate	Dense		
Eddy	196,400	54,100	34,400	284,900	11
Luna	44,000	—	—	44,000	4
Roosevelt	7,500	—	—	7,500	1
Lea	11,000	—	—	11,000	<1
State Totals	258,900	54,100	34,400	347,400	
Percent State Land Area	3	1	1	5	

BIBLIOGRAPHY

Benson, Lyman and Robert A. Darrow. 1981. *Trees and Shrubs of the Southwestern Deserts.* The University of Arizona Press. Tucson, Arizona. 416 pp.

Elmore, Francis H. 1976. *Shrubs and Trees of the Southwest Uplands.* Southwest Parks and Monuments Association. Globe, Arizona. 214 pp.

Gay, Charles W. and Don D. Dwyer. 1980 revised. *New Mexico Range Plants.* New Mexico State University, Cooperative Extension Service, Circular 374. 88 pp.

Lamb, Samuel H. 1975. *Woody Plants of the Southwest.* The Sunstone Press. New Mexico State University, Cooperative Extension Service Circular 374. 84 pp.

Scifres, Charles J. 1980. *Brush Management.* Texas A & M University Press. College Station, Texas. 360 pp.

Sosebee, Ronald E. 1980. *Noxious Brush and Weed Control.* Texas Tech University, Lubbock, Texas.

Smith, H. W. and C. A. Rechenthin. 1964. *Grassland Restoration, The Texas Brush Problem.* United States Department of Agriculture. 31 pp.

Stubbendick, J., Stephan L. Hatch and Kathie J. Kjar. 1981. *North American Range Plants.* Natural Resources Enterprises, Inc. Lincoln, Nebraska. 468 pp.

COPIES OF THIS PUBLICATION OR ADDITIONAL
INFORMATION MAY BE OBTAINED BY WRITING:

NEW MEXICO DEPARTMENT OF AGRICULTURE
P.O. Box 3189
Las Cruces, New Mexico 88003